

1     **What is claimed is:**

2           1.     A method for communicating content to a plurality of clients,  
3 comprising the steps of:  
4               (a) providing multiple network attached storage (NAS) servers;  
5               (b) storing content files on each NAS server for access by one or more  
6 clients;  
7               (c) receiving a request for a content file from a client via a communication  
8 link;  
9               (d) selecting one of the NAS servers that stores the requested content file;  
10              (e) establishing a data stream between that client and the selected NAS  
11 server; and  
12              (f) providing the requested content file from the selected NAS to the  
13 requesting client via the data stream, independent of other NAS servers.

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15           2.     The method of claim 1, wherein step (d) further includes the steps of  
16 determining if one of the NAS servers stores the requested content file, and if so,  
17 selecting that NAS server and performing steps (e) and (f).

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19           3.     The method of claim 1, wherein:

20               step (a) further includes the steps of obtaining identification information  
21 from each NAS server and maintaining that information;  
22               step (b) further includes the steps of maintaining content information  
23 corresponding to each identified NAS server; and  
24               step (d) further includes the steps of checking the content information  
25 to determine if one of the identified NAS servers stores the requested content file,  
26 and if so, selecting that NAS server and performing steps (e) and (f).

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28           4.     The method of claim 1, wherein:

29               step (a) further includes the steps of providing one or more spare NAS  
30 servers;

1               step (b) further includes the steps of storing content files on said spare  
2 servers; and  
3               the method further including the steps of:  
4                       (g) detecting a fault in an NAS server currently providing requested  
5 content file to a client;  
6                       (h) identifying a spare NAS server storing that requested content  
7 file; and  
8                       (i) selectively re-establishing said data stream between that client  
9 and the spare NAS storing the requested content file, wherein that spare NAS server  
10 provides the content file to the client via the data stream, independent of other NAS  
11 servers.

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13               5. The method of claim 1, wherein step (e) further includes the steps of  
14 authenticating the identity of the client before providing the requested content file to  
15 the client.

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17               6. The method of claim 1, wherein step (f) further includes the steps of  
18 receiving authentication information from that client, verifying the authentication  
19 information, and providing the requested content file only if the authentication  
20 information is verified.

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22               7. The method of claim 1, wherein:  
23               step (c) further includes the steps of: receiving multiple requests for content  
24 files from multiple clients;  
25               step (d) further includes the steps of: for each requesting client, selecting one  
26 of the NAS servers that stores the content file requested by that client;  
27               step (e) further includes the steps of: establishing a data stream between  
28 each requesting client and the selected NAS server for that client; and  
29               step (f) further includes the steps of: providing each requested content file  
30 from a selected NAS server to the requesting client via the corresponding data  
31 stream, independent of other NAS servers.

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2       8.     The method of claim 7, wherein said multiple requests are random in  
3     time.

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5       9.     A video server for communicating content to a plurality of clients,  
6     comprising:

7                 one or more network attached storage (NAS) servers, each NAS  
8     server storing content files for access by one or more clients; and  
9                 a management controller connected to the clients and the NAS servers  
10    via a communication link, wherein the management controller receives a request for  
11    a content file from a client, and selectively establishes a data stream between that  
12    client and a selected NAS server which stores the requested content file, such that  
13    the selected NAS server provides the content file to the client via the data stream,  
14    independent of other NAS servers.

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16       10.    The video server of claim 9 further comprising a switch for connecting  
17    the clients to the NAS servers in response to control signals, via a communication  
18    line.

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20       11.    The video server of claim 10, wherein the switch is configured to  
21    provide data routing between the NAS server and the clients.

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23       12.    The video server of claim 10, wherein the management controller is  
24    connected to the clients and the NAS servers by the communication link via the  
25    switch.

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27       13.    The video server of claim 12, wherein the switch is configured to  
28    provide data routing between the NAS server and the clients in response to control  
29    signals from the management controller.

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1           14. The video server of claim 9, wherein at least one NAS server  
2 comprises one or more data storage devices and a storage controller for  
3 coordinating access to the data storage devices.

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5           15. The video server of claim 9, wherein at least one NAS server  
6 concurrently provides multiple data streams to multiple clients.

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8           16. The video server of claim 9, further comprising one or more spare NAS  
9 servers, such the management controller is configured to detect a fault in an NAS  
10 server currently providing requested content file to a client, and to identify a spare  
11 NAS server storing that requested content file, such that the management controller  
12 selectively re-establishes said data stream between that client and the spare NAS  
13 storing the requested content file, wherein that spare NAS server provides the  
14 content file to the client via the data stream, independent of other NAS servers.

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16          17. The video server of claim 9, wherein management controller is  
17 configured to allow addition or removal of one or more NAS servers.

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19          18. The video server of claim 9, wherein the management controller  
20 includes an NAS monitor module which monitors operation of each NAS server, and  
21 selects NAS servers to provide content files to clients.

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23          19. The video server of claim 18, wherein the management controller  
24 includes a client interface module which receives requests from clients and forwards  
25 the requests to the NAS monitor module.

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27          20. The video server of claim 9, wherein each NAS server includes a data  
28 streaming interface module which provides service for reading content files from that  
29 NAS server and sending the data to the requesting client via a data stream.

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1        21. A management controller for a video server for communicating content  
2 from multiple NAS servers storing content files to a plurality of clients, comprising:  
3            a client interface module which receives requests from clients via a  
4 communication link;  
5            an NAS monitor module which monitors operation of each NAS server, and  
6 receives a request for a content file from a client via the client interface, such that  
7 the NAS monitor module selectively establishes a data stream between that client  
8 and a selected NAS server which stores the requested content file, such that the  
9 selected NAS server provides the content file to the client via the data stream,  
10 independent of other NAS servers.

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12        22. The management controller of claim 21, wherein at least one NAS  
13 server comprises one or more data storage devices and a storage controller for  
14 coordinating access to the data storage devices.

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16        23. The management controller of claim 21, wherein at least one NAS  
17 server concurrently provides multiple data streams to multiple clients.

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19        24. The management controller of claim 21, wherein one or more NAS  
20 servers are spare NAS server, and the NAS monitor module is configured to detect a  
21 fault in an NAS server currently providing requested content file to a client, and to  
22 identify a spare NAS server storing that requested content file, such that the  
23 management controller selectively re-establishes said data stream between that  
24 client and the spare NAS storing the requested content file, wherein that spare NAS  
25 server provides the content file to the client via the data stream, independent of  
26 other NAS servers.

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28        25. The management controller of claim 21, wherein management  
29 controller is configured to allow addition or removal of one or more NAS servers.  
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- 1        26. The management controller of claim 21, wherein each NAS server
- 2 includes a data streaming interface module which provides service for reading
- 3 content files from that NAS server and sending the data to the requesting client via a
- 4 data stream.

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